

NOTES ON SOUTH AUSTRALIAN MARINE MOLLUSCA,
WITH DESCRIPTIONS OF NEW SPECIES.—PART XIII.

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[Read October 4, 1910.]

PLATES XXIX. AND XXX.

This paper consists of full notes on the South Australian species of the genera *Scissurella*, *Schismope*, *Pyrene*, and *Turritella*, and of occasional notes on species belonging to several other genera.

I am indebted to Mr. Hedley, Mr. W. L. May, Mr. Gatliff, and Mr. Gabriel for specimens given or loaned and suggestions made. The usual difficulty was found in dealing with the mass of material in the genus *Pyrene*, owing to the variations in each species. Pace, in his preliminary paper on the *Columbellidae* (in Proc. Mal. Soc., London, 1902, vol. v., p. 39) regards the colour markings as of considerable value in distinguishing species, and I set myself the task of studying these very closely; but I cannot say they proved of very great or very definite use, though of some assistance. My conclusions are not altogether in accord with those of other Australian workers, and are intended rather as suggestions for further advances. I found great difficulty, too, in dealing with the deep-sea *Turritellas*, especially the larger forms belonging to the group of *T. runcinata* and *T. accisa*, Watson. He has several species from Australian waters which I cannot recognize with certainty, and my examples show so much variation in sculpture as to make splitting them up into species too dangerous, and to render their accurate description as varieties too difficult and laborious at present.

Scissurella australis, Hedley.

Scissurella australis, Hedley, Memoirs Austr. Mus., 1903, part 6, vol. iv., p. 329, fig. 63. *Type locality*—"63 to 75 fathoms off Port Kembla, New South Wales." Gatliff and Gabriel, Proc. Roy. Soc., Victoria, 1910, vol. xxiii. (N.S.), part 1, p. 95, "off Wilson's Promontory."

Dredged in 130 fathoms off Cape Jaffa, 4 dead; in 150 fathoms off Beachport, 1 good; in 200 fathoms, 1 good; in 300 fathoms off Cape Jaffa, 4 dead. Identified by Mr. Hedley from his type.

Scissurella obliqua, Watson.

Scissurella obliqua, Watson, "Chall." Reports, Zool., vol. xv., 1886, p. 116, pl. viii., fig. 5. *Type locality*—"Kerguelen Island

shore." Pilsbry, Tryon, Man. Conch., 1890, vol. xii., p. 58, pl. lxx., figs. 20 and 21; Pritchard and Gatliff, Proc. Roy. Soc., Victoria, 1903 (1902), vol. xv. (N.S.), part 2, p. 181, Victorian coast.

Gulf St. Vincent beach.

Schismope atkinsoni, Tenison-Woods.

Scissurella atkinsoni, Tenison-Woods, Proc. Roy. Soc., Tasmania, 1877 (1876), p. 149. *Type locality*—Blackman's Bay, Tasmania, 6 to 10 fathoms; G. F. Angas, Proc. Zool. Soc., London, 1878, p. 869, "Holdfast and Aldinga Bays." Pilsbry, Tryon, Man. Conch., 1890, vol. xii., p. 66; Tate and May, Proc. Linn. Soc., New South Wales, 1901, vol. xxvi., p. 407; Pritchard and Gatliff, Proc. Roy. Soc., Victoria, 1903 (1902), vol. xv. (N.S.), part 2, p. 181, Victorian coast; Hedley, Memoirs Austr. Mus., 1903, vol. iv., p. 329, off Port Kembla, New South Wales; also, Records Austr. Mus., 1905, vol. vi., part 2, p. 42; Hedley and May, Records Austr. Mus., 1908, vol. vii., No. 2, p. 109, 100 fathoms off Cape Pillar, Tasmania.

Schismope carinata, Watson, "Chall." Reports, Zool., 1886, vol. xv., p. 119, pl. viii., fig. 6. *Type locality*—Port Jackson, also off Cape York, North-East Australia. Pilsbry, Tryon, Man. Conch., 1890, vol. xii., p. 68, pl. lxx. (lxxviii.), figs. 17 to 19.

This is a very variable little shell in its sculpture. There may be no carination except that of the slit fasciole (is this *S. tasmanica*, Petterd, Jour. of Conch., 1879, p. 104; Tate and May, Proc. Linn. Soc., New South Wales, 1901, vol. xxvi., part 3, p. 407, pl. xxiv., fig. 23?), or only one keel, or two or three. The spiral liræ around the umbilicus may be valid, when the three keels are marked, continuing their series as lesser keels to the edge of the umbilicus; or they may be distinct and lamellose when the keels are absent. Spiral striæ are present from suture to umbilicus, and these vary much in their visibility. Then the axial striæ are sometimes obsolete, sometimes rather distant, sometimes distinct, crowded, and erect, especially between the suture and the slit fasciole, but also sometimes between the keels at the base.

Dredged in 20 fathoms Investigator Strait, 1 alive; Gulf St. Vincent, depth unrecorded, 13 alive and dead; 35 fathoms off St. Francis Island, 2 good; 55 fathoms off Cape Borda, 11 dead; also 62 fathoms, 4 dead.

Schismope beddomei, Petterd.

Schismope Beddomei, Petterd, Jour. of Conch., 1884, vol. iv., p. 139, No. 16.

This species was recorded in Adcock's Handlist of the Aquatic Mollusca of South Australia, 1893, No. 375, p. 9, and in the Report of the Malacological Section of the Royal Society of South Australia in Trans. Roy. Soc., South Australia, 1906, vol. xxx., p. 367, No. 49. I cannot confirm this

record. The species is not represented in Tate's cabinet or mine by shells collected in South Australia.

Schismope pulchra, Petterd.

Schismope pulchra, Petterd, Jour. of Conch., 1884, vol. iv., p. 139, No. 17. *Type locality*—Tasmania, North-West coast. Pilsbry, Tryon, Man. Conch., 1890, vol. xii., p. 68; Hedley, Proc. Linn. Soc., New South Wales, 1900, vol. xxv., part 4, p. 726, fig. 5; Tate and May, Proc. Linn. Soc., New South Wales, 1901, vol. xxvi., part 3, page 407; Pritchard and Gatliff, Proc. Roy. Soc., Victoria, 1903 (1902), vol. xv. (N.S.), part 2, page 182, Western Port; also, *op. cit.*, 1906, vol. xviii., part 2, p. 65; Hedley and May, Records Austr. Mus., 1908, vol. vii., No. 2, p. 109, 100 fathoms off Cape Pillar, Tasmania.

Taken on beach at Robe and Venus Bay. Dredged in Gulf St. Vincent, 5 good; in 35 fathoms off St. Francis Island, 1; in 55 fathoms off Cape Borda, 16 dead; in 110 fathoms off Beachport, 4 good; in 150 fathoms off Beachport, 2 good.

Leiostraca joshuana, Gatliff and Gabriel.

Leiostraca joshuana, Gatliff and Gabriel, Proc. Roy. Soc., Victoria, vol. xxiii. (N.S.), part 1, 1910, p. 83, pl. xviii., fig. 4. *Type locality*—San Remo.

Dredged in 5 fathoms in Gulf St. Vincent, 37 living and dead.

Vanikoro quoyiana, A. Adams.

Vanikoro quoyiana, A. Adams, Proc. Zool. Soc., London, 1853, p. 175, pl. xx. fig. 4. *Type locality*—Chusan; Angas, Proc. Zool. Soc., London, 1867, p. 212, No. 163, Port Jackson; Pritchard and Gatliff, Proc. Roy. Soc., Victoria, 1900 (1899), vol. xii. (N.S.), part 2, p. 197, "Hobson's Bay."

This name is given by E. A. Smith as a synonym of *V. gaimardi*, H. and A. Adams (Genera Moll., 1858, vol. i., p. 375), in Proc. Mal. Soc., London, 1908, vol. viii., No. 2, p. 108. It was placed as *V. quoyi*, Adams, as a synonym of *V. Orbignyani*, Recluz, by Tryon, Man. Conch., 1886, vol. viii., p. 70; but E. A. Smith denies their identity. As *V. Orbignyani*, Recluz, it is recorded from Tasmania by Tate and May, Proc. Linn. Soc., New South Wales, 1901, vol. xxvi., p. 376. As *Narica ligata*, Recluz, it is recorded for South Australia in Adcock's Handlist of Aquatic Mollusca, 1893, p. 6, No. 176.

Taken on the beach at Aldinga and Fowler Bay by Tate. Dredged in 20 fathoms Yankalilla, 6 alive on 1 piece of polyzoan coral; dead in 40 fathoms off Beachport, 2; in 45 fathoms east of Neptune Island, 1; in 55 fathoms off Cape Borda, 74 quite fresh but very small; in 62 fathoms, 4; in 110 fathoms off Beachport, 1 poor; in 130 fathoms off Cape

Jaffa, 2 poor; in 150 fathoms off Beachport, 1 poor. It is evidently alive in water up to 55 fathoms.

The protoconch is prominent, consisting of three well-rounded whorls, of which the first two are smooth, the third gradually develops four spirals of tiny tubercles. It ends abruptly, and then the very bold axial costate sculpture of the spire-whorls begins. The protoconch may be wholly light-brown or only its third whorl.

Vanikoro vincentiana, Angas.

Adeorbis Vincentiana, Angas, Proc. Zool. Soc., London, 1880, p. 417, pl. xl., fig. 9. *Type locality*—Aldinga Bay, Gulf St. Vincent. Tate, Trans. Roy. Soc., South Australia, 1880, vol. iii., p. xlix.; Pilsbry, Tryon, Man. Conch., 1888, vol. x., p. 86, pl. xxx., fig. 100; Adcock, Handlist Aquatic Moll., South Australia, 1893, p. 8, No. 292; Pritchard & Gatliff, Proc. Roy. Soc., Victoria, 1900, vol. xiii. (N.S.), part 1, p. 140, "Sorrento"; Tate and May, Proc. Linn. Soc., New South Wales, 1901, vol. xxvi., part 3, p. 390, "Devonport," Tasmania; also p. 458, description of protoconch and young shell.

Vanikoro vincentiana, Angas, E. A. Smith, Proc. Mal. Soc., London, 1908, vol. viii., p. 116.

Vanikoro denselaminata, Verco, Trans. Roy. Soc., South Australia, 1909, vol. xxxiii., p. 334, pl. xxix., figs. 1, 2, and 3. Mr. Gatliff has suggested that this is the juvenile state of *V. vincentiana*, Angas, as may also be gathered from Tate and May's note, and this is confirmed by my examination of a series of Angas's species; so I place my name as a synonym and add the following observations:—Some examples show spirals in the whorl immediately following the protoconch, in others these are obsolete. In the later portions of the adult shell, the axials become obsolete, and crowded spirals may become quite valid.

Taken on the beach at Reevesby Island, Spencer Gulf, and St. Francis Island. Dredged in Backstairs Passage and Gulf St. Vincent, depth unrecorded. It appears to be a comparatively shallow water form, not having been taken by me at any greater depth than 22 fathoms.

Turritella subsquamosa, Dunker.

Turritella subsquamosa, Dunker, Malak. Blatter, vol. xviii., p. 152. *Type locality*—Bass Strait; Hedley, Memoirs Austr. Mus., vol. iv., part 6, 1903, p. 347, off coast of New South Wales in 40 to 100 fathoms; Pritchard and Gatliff, Proc. Roy. Soc., Victoria, 1906, vol. xviii. (N.S.), part 2, p. 53, Victorian coast; Hedley and May, Records Austr. Mus., 1908, vol. vii., No. 2, p. 110, 100 fathoms off Cape Pillar, Tasmania.

Turritella lamellosa, Watson, Jour. Linn. Soc., 1880, vol. xv., p. 229. *Type locality*—38 to 40 fathoms off East Moncoeur Island, Bass Strait. "Chall." Reports, Zool., vol. xv., 1886, p. 474, pl. xxix., fig. 6; Pritchard and Gatliff, Proc. Roy. Soc., Victoria, 1900 (1899), vol. xii. (N.S.), part 2, p. 203; Tate and May, Proc. Linn. Soc., New South Wales, 1901, vol. xxvi., part 3, p. 378.

Turritella acuta, Tenison-Woods, Proc. Roy. Soc., Tasmania, 1876, (1875), p. 143. *Type locality*—Long Bay, Tasmania (non M. C. Mayer, 1859, Jour. de Conch., vol. vii., p. 298, pl. xi., fig. 7); (*Torcula*), Tryon, Man. Conch., 1886, vol. viii., p. 206, pl. lxxiv., fig. 10; Kobelt, Conch. Cab. (Ed. Küster), 1897, Band i., Abt. xxvii., p. 56, No. 70, pl. xviii., fig. 5; Adcock, Handlist Aquatic Moll. of South Australia, 1893, p. 6, No. 189; recorded for South Australia.

Turritella oxyacris, Tate (*nom. mut.*), Trans. Roy. Soc., South Australia, 1897, vol. xxi., p. 41; Pritchard and Gatliff, Proc. Roy. Soc., Victoria, 1900 (1899), vol. xii. (N.S.), part 2, p. 202; recorded for Victoria.

Dredged alive in 20 and 22 fathoms in Backstairs Passage, and in 20 fathoms Gulf St. Vincent. Dredged dead from 13 fathoms upwards; in 40 fathoms off Beachport, 60 large and small, mostly worn; in 55 fathoms off Cape Borda, 57, up to an inch long; in 110 fathoms off Beachport, 16 in moderate condition; in 130 fathoms off Cape Jaffa, 6 very poor; in 200 fathoms off Beachport, 1 fragment. It appears to live at about 20 fathoms, not in the very shallow nor in the very deep water. Some of the shells from 40 fathoms have axial lines, about 16 in a whorl, which seem like cracks in the deeper layer of the shell substance, and become visible as the outer scabrous covering is worn off.

On the base there may be as many as twelve distinct spiral liræ, or only three or four obsolete threads near the periphery. Generally three or four larger threads encircle the middle third of the spire-whorls; sometimes twelve or fourteen of nearly equal size are distributed over the whorl. The peripheral cord may be very stout, and project considerably beyond the suture, so imbricating the whorl below; or it may not project at all, and the whorls may be uniformly sloping or distinctly convex.

***Turritella clathrata*, Kiener.**

Turritella clathrata, Kiener, Icon. Coq. Viv., p. 38, pl. xiv., fig. 1. *Type locality*—Shores of New Holland. Reeve, Conch. Icon., 1849, vol. v., pl. viii., fig. 37; (*Torcula*), Tryon, Man. Conch. 1886, vol. viii., p. 206, pl. lxxiv., fig. 2; Kobelt, Conch. Cab. (Ed. Küster), Band i., Abt. xxvii., 1897, p. 26, No. 35, pl. vi., fig. 5, and pl. vii., fig. 5; Adcock, Handlist of Aquatic Moll., South Australia, 1893, p. 6, No. 190, recorded for South Australia; Pritchard and Gatliff, Proc. Roy. Soc., Victoria, 1900 (1899), vol. xii. (N.S.), part 2, p. 202, "South-west Victorian coast"; Tate and May, Proc. Linn. Soc., New South Wales, 1901, vol. xxvi., part 3, p. 378, recorded for Tasmania.

Kiener in his description and plate represents the species as quite smooth. But actually besides the two prominent keels there are seven to ten spiral striæ, generally one more above the carina than below. In addition there are, crossing these, very fine lamellar striæ, following the curve of the

border of the aperture. So also the base, which he gives as smooth, has crowded fine curving radial growth lamellæ, crossing about a dozen concentric spiral striæ. He figures rightly the two spiral ribs as about equal; the central is usually more salient, but in different specimens it may be less and less valid until it is no more than a distinct angulation. In other individuals the lower, supra-sutural, spiral cord, which is usually quite valid and imbricating, may be less marked and even absent, only the prominent central carina remaining. In one example, three whorls in the middle of the shell are markedly medially angulate, and not only lack the suprasutural cord, which is present in the earlier whorls, but are quite constricted here, and afterwards the cord gradually appears in the whorls below. The protoconch of two smooth glistening whorls with its pointed apex and the earlier spire-whorls are so alike in this species and *T. subsquamosa*, Dunker, that the tips of the two are indistinguishable from each other. Kiener's type had a length of 48 mm., but the species may attain 53 mm. As Tryon says, there are obscure oblique fulvous stripes over the whorls with spots on the paler keels; but sometimes the living shell is of a uniform dark-purplish-brown, with lighter brown encircling ribs.

It is taken along all the South Australian coast as far west as Point Sinclair. Dredged alive in 20 fathoms in Gulf St. Vincent, and at all shallower depths; dead in 35 fathoms off St. Francis Island, 3 very poor; and in 45 fathoms off Neptune Islands, 1 poor, half an inch long. It evidently does not inhabit such deep water as its very close ally *T. subsquamosa*, Dunker.

***Turritella kimberi*, Verco.**

Turritella kimberi, Verco, Trans. Roy. Soc., South Australia, 1908, vol. xxxii., p. 342, pl. xv., figs. 14 and 15. *Type locality*—Backstairs Passage.

Dredged in Gulf St. Vincent, 1 good; and in 15 to 20 fathoms off St. Francis Island, 1 good.

***Turritella neptunensis*, n. sp. Pl. xxx., fig. 7.**

Shell imperfect, elongate-turreted, of twelve whorls, including a papillate protoconch with a projecting apex, of three convex whorls, the first two smooth, the third faintly axially striate. The following six spire-whorls are markedly medially angulate and minutely carinate, otherwise smooth. The next two whorls become quite convex, and have about seven obsolete flat spiral liræ, most marked near the carina, which forms the central and largest one. The rest of the shell is broken

away. Suture distinct, faintly margined. The accremental striæ indicate a slightly concave outer lip.

Dim.—Length, 6 mm.; breadth 1.4 mm.

Locality.—Type dredged in 104 fathoms 35 miles southwest of Neptune Islands, with three others, all imperfect.

Diagnosis.—Though incomplete, its characters are so distinct as to readily separate it from all other South Australian forms. It resembles *T. kimberi*, Verco, in its long narrow form, its simple mouth and spiral striæ; but *T. kimberi* has a very acute apex, its whorls are all convex, and its spirals are narrower and higher. It differs from *T. atkinsoni* in its smaller size, narrower form, and the roundness of its later whorls.

Type in my collection.

Turritella smithiana, Donald.

Turritella (Colpospira) Smithiana, Donald, Proc. Mal. Soc., London, 1900, vol. iv., p. 55, No. 1, pl. v., figs. 1 and 1c. *Type locality*—410 fathoms off Sydney. Hedley, Memoirs Austr. Mus., 1903, vol. iv., part 6, p. 349, is "not Australian, but probably an Atlantic form"; Hedley and May, Records Austr. Mus., 1908, vol. vii., No. 2, p. 110, in 100 fathoms off Cape Pillar, Tasmania; Gatliff and Gabriel, Proc. Roy. Soc., Victoria, 1909, vol. xxii. (N.S.), part 1, p. 39, San Remo.

Dredged in 130 fathoms off Cape Jaffa, 1 good; in 150 fathoms off Beachport, 1; in 200 fathoms, 1; in 300 fathoms, 32 good, but all dead.

Turritella mediolevis, n. sp. Pl. xxx., figs. 5 and 6.

Shell small, elongately-turreted, narrow, of eleven whorls, including a slightly eccentric protoconch of two convex smooth whorls. The spire-whorls at first are flat and sloping, but later gradually become more convex, until they are quite round. The suture is distinct, subcanaliculate in the earlier part. The base is round. Aperture nearly round, widely effuse in front. Outer lip thin, with a deep central sinus; inner lip thin, rather expanded over a minute perforation. The upper spire-whorls are smooth but for two indistinct bands, one below and one above the suture. In the fifth whorl each of the bands divides into two, and these increase in number in successive whorls, leaving the central part smooth (whence the specific name) but gradually narrowing, until in the penultimate there are about eight somewhat unequal low flat spirals encircling the whole surface. In the body-whorl there are about fifteen flat spirals from the suture to the base of the shell. They are crossed by sinuous axial striæ, shaped like the outer lip. Colour white, light-brown at the base and below the suture.

Dim.—Length, 5·2 mm.; breadth, 1·5 mm.: another example of thirteen whorls is 6·2 mm. long.

Locality.—Type, 62 fathoms off Cape Borda, with very many others; and at 55 fathoms, 2; in 40 fathoms off Beachport, many; in 104 fathoms off the Neptunes, many.

Diagnosis.—From *T. smithiana*, Donald, by the smooth upper whorls and the more numerous and less valid spirals in the later whorls; from *T. kimberi*, Verco, by the blunt two-whorled protoconch; from *T. accisa*, Watson, by its narrower smaller form, its more convex later whorls and their less valid spirals.

Type in my collection.

***Turritella opulenta*, Hedley.**

Turritella opulenta, Hedley, Records of Austr. Mus., 1907, vol. vi., part 4, p. 292, pl. liv., fig. 9. *Type locality*—80 fathoms off Narrabeen, New South Wales. Hedley and May, *op. cit.*, 1908, vol. vii., No. 2, p. 110, 100 fathoms off Cape Pillar, Tasmania.

Dredged in 55 fathoms off Cape Borda, 6 small, good; identified from specimen sent by Mr. May from Cape Pillar.

***Turritella runcinata*, Watson.**

Turritella runcinata, Watson, Jour. Linn. Soc., vol. xv., 1881, p. 217. *Type locality*—38 to 40 fathoms off East Moncoeur Island, Bass Strait. "Chall." Reports, Zool., vol. xv., 1886, p. 475, No. 14, pl. xxx., fig. 3; Miss Donald, Proc. Mal. Soc., London, 1900, p. 47, pl. v., figs. 7 and 7a; Pritchard and Gatliff, Proc. Roy. Soc., Victoria, 1900 (1899), vol. xii. (N.S.), part 2, p. 203; Verco, Trans. Roy. Soc., South Australia, 1907, vol. xxxi., p. 308, pl. xxix., fig. 14, of the radula.

Watson's dimensions are: Height, 1·25 in.: breadth, 0·4 in.; least, 0·38; but they may reach 1·8 in. by 0·5 in.

The colour may be a deep uniform chestnut-brown or a pure white with light-brown apex, and spots and flecks of light-yellowish-brown. There is also a lilac-tinted variety, with a pale diffused broad lilac band over the central third, extending sometimes as far as the lower suture.

This species is quite common as a dredged shell. It has been taken in 16 fathoms, and at all greater depths up to 23 fathoms, in Gulf St. Vincent and Backstairs Passage, alive and dead 106 examples; in 25 fathoms Thorny Passage, 5 good up to 20 mm.; in 35 fathoms off St. Francis Island, 22 good; in 40 fathoms off Beachport, over 800 mostly immature, but ranging up to 37 mm.; in 55 fathoms off Cape Borda, 640 with some hundreds of tips; in 62 fathoms off Cape Borda, 82 good up to 25 mm.: in 90 fathoms off Cape

Jaffa, 16 up to 15 mm. and over a hundred tips; in 110 fathoms off Beachport, 1 adult and 191 up to 20 mm.; in 130 fathoms off Cape Jaffa, 42 up to 7 mm.; in 150 fathoms off Beachport, 17 up to 15 mm.; in 200 fathoms off Beachport, 8 poor and small. The finest examples, as to size and condition, are found in water from 15 to 25 fathoms; beyond that depth, though much more abundant, they are immature or smaller.

Turritella accisa, Watson.

Turritella accisa. Watson, Jour. Linn. Soc., London, 1881 (1800), vol. xv., p. 220. *Type locality*—Off East Moncoeur Island, Bass Strait, 38 to 40 fathoms; also "Chall." Reports, Zool., 1886, vol. xv., p. 476, No. 15, pl. xxx., fig. 4; Pritchard and Gatliff, Proc. Roy. Soc., Victoria, 1900 (1899), vol. xii. (N.S.), part 2, p. 203; Tate and May, Proc. Linn. Soc., New South Wales, 1901, vol. xxvi., part 3, p. 379; Hedley and May, Records Austr. Mus., 1908, vol. vii., No. 2, p. 110, in 100 fathoms off Cape Pillar, Tasmania.

Turritella higginsii, Petterd, Jour. Conch., 1884, p. 135. *Type locality*—Tamar Heads, Tasmania, *teste* Tate and May, *loc. cit.*

Dredged in 40 fathoms off Beachport, 211 of all sizes to adult; in 55 fathoms off Cape Borda, 3 young fresh, 3 adult perfect; in 62 fathoms off Cape Borda, 69 quite fresh up to full grown and 9 perfect adult; in 90 fathoms off Cape Jaffa, 24 good, well coloured, 32 immature; in 110 fathoms off Beachport, 22 good adult, 28 immature; in 130 fathoms off Cape Jaffa, 11 immature; in 150 fathoms off Beachport, 23 in moderate condition up to adult, 16 immature fresh; in 200 fathoms off Beachport, 11 poor and immature. The *habitat* of this species differs somewhat from that of *T. runcinata*, Watson, which attains its maximum size and is abundant in water from 15 to 25 fathoms. *T. accisa* has not been taken by me at shallower depths than 40 fathoms; it did not accompany *T. runcinata* in 35 fathoms off St. Francis Island.

Turritella circumligata, n. sp. Pl. xxx., figs. 3 and 4.

Shell solid, of thirteen whorls, including a protoconch of two smooth convex whorls with a prominent round apex. The first three spire-whorls are smooth but for faint growth lines, and are very slightly convex. The fourth has four spiral cords very faintly marked, which become very stout in the later whorls. The suprasutural cord, the strongest, is round and projects beyond the suture, so as to imbricate the shell; the infrasutural is as wide, but not so high, and slopes from the suture; close to this cord is a much narrower and less prominent one, and further removed from this and closer to the suprasutural cord is another round spiral. In the last

two whorls a fifth small cord appears above the suture. The base is flatly rounded, with five flat low spiral cords. The aperture is squarely round, slightly effuse near the columella, which is curved; inner lip, a broad glaze; outer lip simple, smooth inside, corrugated outside by the spirals, with a deep broad sinus well rounded at its depth between the two smaller cords; growth lines corresponding in outline with the outer lip constitute the only other sculpture. It has a pale-yellow-brown tint, with darker brown spirals between the cords, and a broad brownish spiral over the middle of the base.

Dim.—Length, 17 mm.; breadth, 6 mm.

Locality.—Type in 110 fathoms off Beachport, with 11 others good; in 150 fathoms, 8 poor; in 130 fathoms off Cape Jaffa, 9 good.

It may reach 22.5 mm. in length. The suprasutural and infrasutural cords may each split in the later whorls at its upper part to form a small secondary spiral.

Diagnosis.—Its alliance is with *T. australis*, Lam., from which, however, it differs in its more numerous and non-tuberculate spirals; from the Tasmanian variant, *T. granulifera*, Tenison-Woods, it differs in the absence of nodulation, and the relative disposition of the ribs, and of numerous spiral threadlets. It is of interest to note that neither of these forms is found in South Australian waters, though taken at Western Port, Victoria, and in Tasmania abundantly.

Type in my collection.

***Turritella atkinsoni*, Tate and May.**

Turritella tasmanica, Tenison-Woods (*non* Reeve), Proc. Roy. Soc., Tasmania, 1877 (1876), p. 140. *Type locality*—Long Bay, Tasmania.

Turritella atkinsoni, Tate and May (*nom. mut.*). Trans. Roy. Soc., South Australia, 1900, p. 95; also Proc. Linn. Soc., New South Wales, 1901, vol. xxvi., part 3, p. 378, pl. xxiii., figs. 15, 16, and 17; Gatliff and Gabriel, Proc. Roy. Soc., Victoria, 1909, vol. xxii. (N.S.), part 1, p. 38, Bass Strait.

Var. *Turritella godeffroyana*, Donald, Proc. Mal. Soc., London, 1900, vol. iv., p. 53, No. 3, pl. v., figs. 6 and 6a. *Type locality*—Bass Strait. Tate and May regard this shell, which Miss Donald described as a new species, as a variety of Tenison-Woods' species; and Hedley, in *Memoirs Aust. Mus.*, 1903, vol. iv., part 6, p. 349, points out that her name has some months' priority over that of Tate and May.

Dredged in 90 fathoms off Cape Jaffa, 1; in 110 fathoms off Beachport, 2; in 130 fathoms off Cape Jaffa, 2; in 150 fathoms off Beachport, 15 good up to 16 mm. in length; in 200 fathoms off Beachport, 2 good.

Turritella atkinsoni, Tenison-Woods. *Var. medioangulata*, n. var. Pl. xxx., figs 8 and 9.

Shell rather thin, turriculate, of twelve whorls, including a slightly mamillate blunt protoconch of two convex smooth whorls. Suture distinct, linear. Whorls medially strongly angulate and feebly carinate, sloping to both sutures, concavely to the lower, and feebly swollen midway to the upper. The first and second whorls are bicarinate, the lower carina is the rather less valid and gradually decreases to an obsolete spiral stria.

In successive whorls new striæ arise, so that in the penultimate there are three in the upper and four in the lower half of the whorl, but all obsolete. The body-whorl has a round cord-like carina forming the periphery at the suture, beyond which the base is nearly flat, slightly concave, and with numerous sublenticular spiral striæ. Aperture roundly hexagonal, with a wide effuse base; outer lip thin, roundly angled at its centre (the carina ceasing some distance from it), with a wide deep sinus having its centre at the angulation. Columella curved. Colour yellowish-brown, lighter along the suture, the earlier whorls translucent-white, tinted brownish along the angulation.

Dim.—Length, 12·9 mm.; breadth, greatest 3·6 mm., least 3 mm.

Locality.—Type in 104 fathoms 35 miles south-west of Neptune Island, with more than 80 others; in 110 fathoms off Beachport, 7 fresh, 4 poor; in 150 fathoms, 39 good; in 200 fathoms, 29 large but poor, only 2 good; in 90 fathoms off Cape Jaffa, 24 good and alive, 55 small; in 300 fathoms, 15 poor and small. It would seem, therefore, to favour 90 to 200 fathoms, and to be essentially a deep-water form. I have not taken a specimen at any less depth.

Variations.—It may reach a length of 17·75 mm. and have fourteen whorls. The angulation may be provided with a distinct carinating cord. One of the spiral striæ just behind this may also become a valid cord, and together with these, in other specimens, the peripheral spiral may appear just above the suture, with another valid spiral close behind it. These differences suggest conspecificity with *T. atkinsoni*, Tenison-Woods, although my typical shell, and the boldest-ribbed examples of his species, are very unlike. But he described his type as having "two principal keels"; *T. godeffroyana*, Donald, has three, and Tate says *T. atkinsoni* has four. The two figures drawn by Tate and May in Proc. Linn. Soc., New South Wales, *loc. cit.*, show two very dissimilar forms,

and my figure gives an extremely aberrant variety of the same species.

Type in my collection.

Strebloceras cygnicollis, Hedley.

Strebloceras cygnicollis, Hedley, Proc. Linn. Soc., New South Wales, 1904, part 1, p. 189, pl. viii., figs. 12 to 14. *Type locality*.—Port Jackson. Pritchard and Gatliff, Proc. Roy. Soc., Victoria, 1906, vol. xviii. (N.S.), part 2, p. 56, recorded for Victoria.

Dredged in 55 fathoms north-west of Cape Borda, 4 alive, 1 dead.

The smooth glassy embryonic portion beyond the marked varix is not equally thin-walled throughout, but the spire and the proximal fifth are solid, and then the very thick walls gradually thin towards the varix.

Triphora tasmanica, Tenison-Woods. *Var. lilacina*, Verco;
var. aureovincta, Verco,

This exquisitely pretty little shell was taken in perfect condition in 55 fathoms off Cape Borda.

It has a golden band like *T. regina*, Hedley, but instead of colouring the most anterior spiral of pearls, it ornaments the smooth spiral plait in front of this, and so is found in the suture and on the base of the body-whorl. Its protoconch is that of *T. tasmanica*, and has not the spicular form of *T. regina*. It is very deeply-coloured purple, like the *var. lilacina*, Verco. One example, perfect, of eight whorls, was taken.

Type in my collection.

Triphora novapostrema, n. sp. Pl. xxx., figs. 1 and 2.

Shell immature, of eight whorls, including the protoconch of two whorls, the first nearly smooth with a round projecting apex, the second with two stout prominent keels, gradually becoming nodular. In the first spire-whorl arises a faint third spiral, posterior to the others (whence the specific name), which continuously enlarges till it nearly equals them in size. They are crossed by axial liræ, about fourteen in the last whorl, both axials and spirals being well marked, the latter the stouter, and being tuberculate at their intersection. The peripheral spiral is prominent and subtuberculate, it is visible in the earlier sutures, but not in the later; two flat obsolete plaits curve round the base. Colour white.

Dim.—Length, 3.1 mm.; breadth, 1.2 mm. The largest example, immature, is 5.2 mm.

Locality.—Dredged in 55 fathoms off Cape Borda, type with 7 others, some quite fresh, all immature; in Gulf St. Vincent, 1.

Diagnosis.—Its special characters are its blunt proto-conch with two carinæ, and the third spiral arising behind the others; in most *Triphora* it arises between them as in *T. angasi*, *tasmanica*, *cana*, etc.

Type in my collection.

Pyrene versicolor, Sowerby.

Columbella versicolor, Sowerby, Proc. Zool. Soc., London, 1832, p. 119. *Type locality*—Annaa, Philippine Islands (Cuming). Sowerby, Thes. Conch., vol. i., 1857, p. 117, sp. 18, pl. xxxvii., figs. 41-46; Reeve, Conch. Icon., 1858, pl. xi., figs. 51 *a* and *b*; Angas, Proc. Zool. Soc., London, 1867, p. 194, New South Wales; Tryon, Man. Conch., vol. v., 1883, p. 110, pl. xlv., figs. 84-96; (*Pyrene*) Hedley, Australasian Association for the Advancement of Science, 1909, Queensland.

Columbella scripta, Lamarck, Hist. Nat. Anim., sans Vert., ed. 2, vol. x., p. 270 (*non* Linn.).

Columbella bidentata, Menke, Moll. Nov. Holl., 1843, p. 23, No. 108; Sowerby, Thes. Conch., vol. i., 1847, p. 118, sp. 21, pl. xxxvii., figs. 53 and 54.

Columbella arenosa, Kiener; *coronata*, Duclos; *athadona*, Duclos; *tigrina*, Duclos; *aspersa*, Sowerby; *nivosa*, Reeve; *per-tusa*, Reeve, are synonyms, according to Tryon (*loc. cit.*).

This species, a tropical form, appears to come some distance down the Eastern coast of Australia, but not to reach Victoria or Tasmania. It is found along the Western coast of Australia, and at Albany on the southern coast. I have a recent shell from St. Francis Island, and Dr. Torr one from Wool Bay.

At Murat Bay, in a subfossil form in a kind of conglomerate on the beach, they are found in great numbers bearing their colour markings with *Meleagrina fimbriata*, Dunker, and *Barbatia trapezia*, Deshayes, neither of which is found in our waters alive, and in the same condition they occur along the South Australian coastline to the east.

Pyrene varians, Sowerby.

Columbella varians, Sowerby, Proc. Zool. Soc., London, 1832, p. 118. *Type locality*—Gallapagos Island (Cuming). Thes. Conch., 1857, vol. 1., p. 117, pl. xxxvii., figs. 47 to 50; Reeve, Conch. Icon., 1858, pl. xvii., sp. 91; Tryon, Man. Conch., vol. v., 1883, p. 110, pl. xlv., figs. 97 and 2, and pl. xlvi., figs. 3, 5, and 6, also "Philippines and New Guinea"; Hedley, Australasian Association for the Advancement of Science, Brisbane, 1909, p. 368, recorded for Queensland.

In Tate's cabinet is an example from Wauralti, in Spencer Gulf, named and its locality certified by himself. I have not yet taken it on the South Australian coast, nor has any other collector to my knowledge.

Pyrene semiconvexa, Lamarck.

Buccinum semiconvexum, Lamarck, Hist. Nat. Anim. sans Vert., 1822, vol. vii., p. 272, no fig., locality unknown; Sowerby, Thes. Conch., vol. i., 1847, p. 127, sp. 45, pl. xxxviii., figs. 103 and 104, "Port Lincoln, Australia."

Var. *C. strigata*, Reeve, Conch. Icon., 1859, vol. xi., pl. xxv., fig. 154, locality unknown.

Var. *rosacea*, Reeve, Conch. Icon., 1859, vol. xi., pl. xxix., fig. 183, locality unknown.

Var. *Yorkensis*, Crosse, Jour. de Conch., 1865, p. 55, pl. ii., fig. 6. *Type locality*—Yorke Peninsula.

Dredged alive in 12 fathoms, and immature alive up to 22 fathoms Backstairs Passage.

There may be no markings, the shell being wholly white, or yellow, or rose-tinted, or whitish-purple, or dark-brown. There may be zig-zag axial red-brown markings throughout, or throughout the spire and just below the suture on the last whorl, the rest unicoloured. An infrasutural and a peripheral narrow articulated white-and-brown band may encircle it, the rest uniformly brown, or minutely white spotted. It may be dark-brown, almost uniformly punctuated with white; or dark-brown with a rather wide infrasutural white articulated band, and beyond this crowded spirally elongate narrow arrow-headed interrupted brown lines, forming a spiral reticulate pattern, recalling *C. dictua*, Tenison-Woods.

Pyrene austrina, Gaskoin.

Columbella austrina, Gaskoin, Proc. Zool. Soc., London, 1851, p. 9. *Type locality*—Australia. Reeve, Conch. Icon., vol. xi., 1858, pl. xix., fig. 100, Australia; Tryon, Man. Conch., vol. v., 1883, p. 126, pl. xlix., fig. 99; Pritchard and Gatliff, Proc. Roy. Soc., Victoria, 1899 (1898), vol. xi., p. 198, Victoria; Tate and May, Proc. Linn. Soc., New South Wales, 1901, vol. xxvi., p. 365, Tasmania.

Dredged alive in 10 to 12 fathoms off Rapid Head, 1; and in 17 fathoms Investigator Strait, 2; occurring all along the coast; abundant and large on the shore of St. Francis Island; taken at Rottnest, Western Australia. Neither Angas nor Hedley records it for New South Wales, but it is found in Tasmania and Victoria. How far north does it extend along the Eastern and Western Australian shores?

Pyrene menkeana, Reeve.

Buccinum acuminatum, Menke (*non Col. acuminata*, Nuttall), Moll. Nov. Holl., 1843, p. 20, No. 87.

Columbella menkeana, Reeve, Conch. Icon., 1858, vol. xi., pl. xiv., figs. 69a and b. *Type locality*—Australia.

Columbella (Mitrella), Angas, Proc. Zool. Soc., London, 1865, p. 166, "Gulf St. Vincent"; Tryon, Man. Conch., 1883, vol. v.,

p. 120, pl. xlvi., fig. 66; Kobelt, Conch. Cab. (Ed. Küster), Band 3, 1897, Abt. i.B, p. 110, No. 89, pl. xvi., figs 12 to 14; Pritchard and Gatliff, Proc. Roy. Soc., Victoria, 1899 (1898), vol. xi. (N.S.), part 2, p. 198, Victorian coast; Tate and May, Proc. Linn. Soc., New South Wales, 1901, vol. xxvi., part 3, p. 365, Tasmania.

Columbella xavieriana, Tenison-Woods, Proc. Roy. Soc., Tasmania, 1877 (1876), p. 134. *Type locality*—North coast, Tasmania (*Mitrella*); Tryon, Man. Conch., 1883, vol. v., p. 137, pl. li., fig. 50; Kobelt, Conch. Cab. (Ed. Küster), 1897, Band iii., Abt. i.E, p. 213, pl. xxix., fig. 10.

Some are uniformly light-brown, with a broad infrasutural band, well defined anteriorly, articulated blackish-brown and white; the white areas may be the larger, or the brown, or both may be very narrow and numerous. The white areas may consist of white dots. In addition to the infrasutural band there may be a very distinct narrow peripheral articulated white-and-brown spiral line, its spots varying much in length. The infrasutural white areas may extend down to this line, the brown being of their usual extent, or these may reach it as well. These areas may both be continued from the suture obliquely to the extreme end of the shell, and be united in a narrow brown area behind the notch (*P. xavierianu*, T. Woods). In these last two variations the brown may be more or less completely flecked with tiny white dots. The shell may be uniformly light-brown, or very light-brown or white, with a narrow brown-black line immediately above the suture, and encircling the body-whorl, or pure white. The shell may be very pale-brown, flecked all over with white dots, and have two broad delicate purple spiral bands, one just below the centre of the spire-whorls, the other below the periphery of the body-whorl; or there may be an infrasutural narrow articulated band, then a light-brown band, then the purple band, then a peripheral brown band, then the basal purple band. This purple variety, which is an exquisitely pretty shell, I call var. *purpureocincta*.

Taken along the whole of the South Australian coastline. Dredged alive in 9 and 12 fathoms Gulf St. Vincent; 15 fathoms Point Marsden; dead in 17 fathoms Backstairs Passage, several, and in 20 fathoms; in 25 fathoms Thorny Passage, 2 fresh; in 40 fathoms off Beachport, 6 nearly bleached; none at greater depths. It is plainly a shallow-water form.

***Pyrene axiaerata*, n. sp.** Pl. xxix., fig 4.

Shell fusiform, spire elate, apex subacute, whorls seven, feebly convex. Sutures distinct, simple. Shell immature,

mouth not formed. Last whorl much compressed at the base, with a rather long contracted snout. Aperture narrowly oval, canal short, feebly sinistral. Columella slightly convex, and originating about fifteen oblique spiral liræ to curve over the back of the snout. Almost smooth; sublenticular accremental, and spiral striæ.

Glistening. First four whorls faintly pink, diminishing from the apex; ground colour a bluish-gray; ornamented with bronze- or amber-coloured axial bands, slightly narrower than their interspaces, about twelve to a whorl, from suture to suture, splitting into three or four threads forming a spiral band of hair lines below periphery, and then continued as fewer and rather wider flames over the base.

Dim.—Length, 10·4 mm.; breadth, 3·7 mm.

Locality.—Type in 40 fathoms off Beachport, with 5 others quite fresh, all immature.

In some the bands below the periphery, instead of forming the spiral of hair lines, will coalesce, two to form one basal flame.

Its affinity seems to be with *P. menkeana*, Reeve, but its whorls are more convex, and it has not a similar body-whorl; but then it is immature.

Type in my collection.

Pyrene lincolnensis, Reeve.

Columbella lincolnensis, Reeve, Conch. Icon., 1859, pl. xxix., figs. 184a and b. *Type locality*—Port Lincoln, Australia. *C. (Mitrella)*, Angas, Proc. Zool. Soc., London, 1865, p. 166, No. 64; also, *op. cit.*, 1867, p. 195, Port Jackson; Tryon, Man. Conch., 1883, vol. v., p. 120, pl. xlviii., fig. 65; (*Atilia*) Kobelt, Conch. Cab. (Ed. Küster), Band iii., 1897, Abt. i.d., p. 134, No. 118, pl. xix., figs. 15 and 16; (*Columbella*) Pritchard and Gatliff, Proc. Roy. Soc., Victoria, 1899, vol. xi. (N.S.), part 2, p. 199, Victorian coast; Tate and May, Proc. Linn. Soc., New South Wales, 1901, vol. xxvi., part 3, p. 365, Tasmania; Hedley, Memoirs Aust. Mus., 1903, vol. iv., part 6, p. 377, 22 to 59 fathoms off the coast of New South Wales.

Taken all along the South Australian shore. Dredged alive in 5 fathoms off Edithburgh, many; in 7 fathoms, 1; in Backstairs Passage 17 fathoms, 3; in 24 fathoms off Newland Head, 1; dead, many at all depths to 22 fathoms; in 55 fathoms off Cape Borda, 1. This seems to be a shallow-water shell.

Its ornament varies greatly. One variety is quite white, with a narrow black spiral line just above the suture and circling the body-whorl.

Pyrene lineolata, Tryon.

Columbella (Mitrella) lineolata (Pease), Brazier, Tryon, Man. Conch., 1883, vol. v., p. 138, pl. li, fig. 53. *Type locality*—New South Wales. Kobelt, Conch. Cab. (Ed. Küster), 1897, Band iii., Abt. i.e, p. 214, pl. xxix., fig. 12.

Columbella dermestoides, Kiener, Angas (*non* Kiener), Proc. Zool. Soc., London, 1865, p. 167, No. 65, Port Lincoln; also *op. cit.*, 1867, p. 195, 5 fathoms Port Jackson.

Columbella maculosa, Pease, (*non* Sowerby), American Jour. Conch., 1871, vol. vii., p. 22.

Columbella lineolata, Pease, Brazier, Proc. Linn. Soc., New South Wales, 1877, vol. i., p. 231 (*non lineata*, Pease).

Columbella lineolata, Tryon, Pritchard and Gatliff, Proc. Roy. Soc., Victoria, 1899 (1898), vol. xi. (N.S.), part 2, p. 199, Victorian coast.

Columbella lineolata, Brazier, Tate and May, Proc. Linn. Soc., New South Wales, 1901, vol. xxvi., part 3, p. 366, Tasmania.

Taken on beach at Port Elliot and Port Lincoln, rare.

Pyrene miltostoma, Tenison-Woods.

Columbella miltostoma, Tenison-Woods, Proc. Roy. Soc., Tasmania, 1877 (1876), p. 134. *Type locality*—North coast, Tasmania; referred to *C. semiconvexa*, Lamarck, as a small form by Tryon, Man. Conch., 1883, vol. v., p. 125, pl. xlviii., fig. 93, and by Kobelt, Conch. Cab. (Ed. Küster), Band iii., 1897, Abt. i.d, pp. 81, 82; Pritchard and Gatliff, Proc. Roy. Soc., Victoria, 1899 (1898), vol. xi. (N.S.), part 2, p. 200, "Flinders, San Remo."

Columbella (Mitrella) unisulcata, Kobelt, Conch. Cab. (Ed. Küster), 1897 (1892), Band iii., p. 119, No. 100, pl. xvii., figs. 15 and 16. *Type locality*—Tasmania.

Misidentified as *Columbella sacharata*, Reeve, by Tate and May, Proc. Linn. Soc., New South Wales, 1901, vol. xxvi., part 3, p. 366.

Taken in Streaky and Fowler Bay (Tate), and on St. Francis Island. Dredged in 15 fathoms Investigator Strait, 1 perfect; in 110 fathoms off Beachport, 1 dead, immature. It is rare in South Australia.

Pyrene tenuis, Gaskoin.

Columbella tenuis, Gaskoin, Proc. Zool. Soc., London, 1852 (1851), p. 2, Hab. (?); Reeve, Conch. Icon., 1859, pl. xxxv., fig. 224; Tryon, Man. Conch., 1883, vol. v., p. 227, pl. xlix., fig. 3; Kobelt, Conch. Cab. (Ed. Küster), 1897 (1892), Band iii., Abt. i.d and e, p. 127, No. 109, pl. xviii., figs. 15 and 16; Pritchard and Gatliff, Proc. Roy. Soc., Victoria, 1899 (1898), vol. xi. (N.S.), part 2, p. 201, Victorian coast.

Columbella pulla, Gaskoin, Proc. Zool. Soc., London, 1852 (1851), p. 6. *Type locality*—Unknown. Reeve, Conch. Icon., 1858, vol. xi., pl. xix., fig. 106; (*Mitrella*), Angas, Proc. Zool.

Soc., London, 1867, p. 195, Port Jackson; Tryon, Man. Conch., 1883, vol. v., p. 127, pl. xlix., figs. 4 to 6; Kobelt, Conch. Cab. (Ed. Küster), 1897 (1892), Band iii., Abt. i.D., p. 106, No. 84, pl. xv., figs. 15 to 18; Adcock, Handlist Moll., South Australia, 1893, p. 5, No. 111.

Columbella nux, Reeve, Conch. Icon., 1859, vol. xi., pl. xxxv., fig. 227. *Type locality*—"Port Adelaide, New Holland."

Columbella badia, Tenison-Woods, Proc. Roy. Soc., Tasmania, 1876 (1875), p. 151. *Type locality*—"Swansea, East coast."

Columbella roblini, Tenison-Woods, Proc. Roy. Soc., Tasmania, 1876 (1875), p. 151. *Type locality*—"Storm Bay, East coast."

The colour variations are very many:—

A. Uniform dark-brown, only columella white.

B. An additional brown infrasutural line.

C. A brown infrasutural and a white peripheral line.

D. Dark-brown, spotted obscurely with white, the white columella sparsely blotched with brown.

E. Like D, but with a white-and-black articulated infrasutural line, and a peripheral spiral of white spots, varying in size and distinctness. The apex may be purplish, and the general colour purplish-brown.

F. Like D, but with axial dark-brown flames, zig-zag at the periphery.

G. Like A, but with dark-brown squarish flames or blotches, extending from suture to suture, or to a little below the periphery.

H. With a white or more or less deep-brown ground colour there may be axial brown stripes straight, wavy, or becoming broken up.

Pyrene tenebrica, Reeve.

Columbella tenebrica, Reeve, Conch. Icon., 1859, vol. xi., pl. xxxi., fig. 204. *Type locality*—Unknown. (*Mitrella*), Tryon, Man. Conch., 1883, vol. v., p. 128, pl. xlix., fig. 9; Kobelt, Conch. Cab. (Ed. Küster), 1897 (1892), Band iii., Abt. i.D., p. 119, No. 99, pl. xvii., fig. 14; Pritchard and Gatliff, Proc. Roy. Soc., Victoria, 1899 (1898), vol. xi. (N.S.), part 2, p. 202, "Western Port"; Pace, Proc. Mal. Soc., London, 1902, vol. v., p. 143. [Cuming Coll., Brit. Mus., London (!).]

Taken on the beach at Port Elliot and dredged alive in 17 fathoms Backstairs Passage; identification confirmed by Mr. Gatliff.

I think this is only the variety D of *P. tenuis*, Gaskoin.

Pyrene infumata, Crosse.

Columbella infumata, Crosse, Jour. de Conch., 1863, p. 84, pl. i., fig. 3. *Type locality*—Gulf St. Vincent. Angas, Proc. Zool. Soc., London, 1865, p. 166, "Under stones and amongst weed, Salt Creek, Yorke Peninsula"; Tryon, Man. Conch., 1883, vol. v.,

p. 117, pl. xlviii., fig. 45; Kobelt, Conch. Cab. (Ed. Küster), 1897 (1892); Band iii., Abt. i.D., p. 105, No. 83, pl. xv., fig. 14; Adcock, Handlist Moll., South Australia, 1893, p. 5, No. 104.

Dredged in 7 fathoms, 1 alive; taken on Port Victor beach, typical; dredged in 9 fathoms, Port Lincoln, 1; and in Spencer Gulf, depth unrecorded, 3; taken on beach at Port MacDonnell, with an added peripheral narrow spiral line of white, dotted or continuous.

I think this is most likely only a variety of *P. tenuis*, Gaskoin.

Pyrene nubeculata, Reeve.

Columbella nubeculata, Reeve, Conch. Icon., 1859, vol. xi., pl. xxxvii., fig. 234. *Type locality*—Unknown. (*Mitrella*), Tryon Man. Conch., 1883, vol. v., p. 140, pl. li., fig. 55; Kobelt, Conch. Cab. (Ed. Küster), 1897 (1892), Band iii., Abt. i., p. 113, No. 92, pl. xvi., fig. 18; Pritchard and Gatliff, Proc. Roy. Soc., Victoria, 1899 (1898), vol. xi. (N.S.), part 2, p. 202, Victorian coast; (*nupeculata*), Tate and May, Proc. Linn. Soc., New South Wales, 1901, vol. xxvi., part 3, p. 366, Tasmania.

Columbella dictua, Tenison-Woods, Proc. Roy. Soc., Tasmania, 1879 (1878), pp. 34 and 35. *Type locality*—North Tasmania. (*Mitrella*), Tryon, Man. Conch., 1883, vol. v., p. 126, pl. xlviii., fig. 96, very poor; Kobelt, Conch. Cab. (Ed. Küster), 1897 (1895), Band iii., Abt. i., p. 209, No. 230, pl. xxix., fig. 1.

Columbella (Mitrella) vineta, Tate, Trans. Roy. Soc., South Australia, 1893, vol. xvii., p. 190, pl. i., fig. 11. *Type locality*—"Fowler and Streaky Bays, Middleton, and Cape Northumberland, South Australia; also North coast of Tasmania."

Pritchard and Gatliff make *C. dictua* and *C. vineta* synonyms of *C. nubeculata*, though the locality of this species is unknown. Tate and May followed them, and for the sake of uniformity I have accepted the identity. I am, however, more disposed to think that *C. saccharata*, Reeve, might have priority; in publication it has priority in place in Conch. Icon., its locality (Van Diemen Land) is suggestive, its size 13 mm., though larger than the majority of examples, is equalled by some *C. vineta*, and it corresponds in description with the translucent pink or salmon-red varieties to which Pritchard and Gatliff refer.

There are three typical colour varieties, if we exclude *C. saccharata*, Reeve, *viz.*:—the *C. dictua* form, the *Vineta* form, and a maculated form.

The *Dictua* form, with its oblique wider or narrower brown lines coalescing into long arrow-heads, may vary as follows:—

1. There may be a peripheral spiral of white spots.
2. A peripheral spiral of articulated white-and-brown spots, and another infrasutural.
3. An infrasutural spiral only of articulated white-and-brown spots.

4. A peripheral spiral of white spots, the oblique lines above this thickened at intervals to form ragged brown axial flames.

5. Purple tinted.

6. A broad amber band over the lower three-fifths of the spire-whorl; a white band below this, from the level of the suture on the body-whorl; below this a somewhat fainter one on the base; the amber bands formed of very crowded oblique spiral lines.

They have been dredged in 17 to 22 fathoms in Backstairs Passage, 16 alive or in good condition; in Gulf St. Vincent and Spencer Gulf at unrecorded depths, 5 dead; and taken on the beach along the South Australian coast and on St. Francis Island. Comparatively rare.

The *Vincta* form may vary as follows:—

1. The dark band on the spire-whorls may reach the anterior suture.

2. There may be a white band between it and the suture.

3. The band may be scalloped, behind only, or in front also; the posterior white bands may be interrupted by the points of the scallops reaching the suture.

4. A second revolving broad band, generally lighter in colour, usually occurs on the front of the body-whorl, and may be quite separated from the first by a white band, or united at intervals by the points of the scallops.

5. There may be numerous axial hair lines from the band, back to the suture, and forward to the base.

6. There may be a single dark-brown band at the posterior suture, fading out anteriorly, and there may be in addition a double narrow line at the periphery. Middleton (Miss Stow).

The maculated form:—

This is the shell which was recorded in Adcock's Handlist of Aquatic Moll. of South Australia, 1893, p. 5, No. 117, as *C. Tayloriana*, Reeve, *albomaculata*, Angas; but it was a misidentification, and is a variety nearly allied to *C. vincta*, Tate.

1. It has a row of dark-brown blotches on the spire-whorls, a second row just in front of the periphery on the body-whorl, and a narrow infrasutural row of white spots. Gulf St. Vincent, (?) depth, 1 dead: Edithburgh rocks, many alive.

2. The second row of blotches may be absent. Gulf St. Vincent, (?) depth, 1 alive, 7 dead: Edithburgh rocks, alive; Venus Bay, 1; Beachport beach, 1.

3. There may be a white-and-brown peripheral spiral, and the blotches may be broken up into short spiral splashes,

or replaced by flames extending axially in a zigzag way which may be composed of narrow lines, and so approach *C. dictua*. The blotches may tend to coalesce spirally, and so approximate *C. vineta*, Tate.

This form was sent to me some time ago from North Tasmania under the name of *C. achatina*, Sowerby, the type locality of which is Swan River. (*Columbella achatina, nobis*, Sowerby, Thes. Conch., vol. i., 1847, p. 132, sp. 61, pl. xxxix., fig. 126.) The figure is 18.5 mm., and appears to be drawn of the natural size. An exactly similar shell I have from Rottneest Island, off Swan River. Reeve's figure, No. 54, pl. xii., Conch. Icon., is, however, 23.5 mm. long, and no measurement is given: so if drawn of natural size this can scarcely be identical.

Pyrene saccharata, Reeve.

Columbella saccharata, Reeve, Conch. Icon., 1859, pl. xxix., fig. 187. *Type locality*—Van Diemen's Land; Pace, Proc. Mal. Soc., London, 1892, vol. v., pp. 131 and 132.

Tryon, Man. Conch., 1883, vol. v., p. 125, makes it a synonym of *C. semiconvexa*, Lamarck, and is followed by Kobelt, Conch. Cab. (Ed. Küster), 1897 (1892), Band iii., Abt. i.d., pp. 81 and 82, No. 60.

Tate and May, Proc. Linn. Soc., New South Wales, 1901, vol. xxvi., part 3, p. 366, make it the specific name of *C. miltostoma*, Tenison-Woods, and *C. unisulcata*, Kobelt, giving Dr. Milligan's shells from Oyster Bay as the British Museum types; but Pace says these are not the types, but the Cuming Collection shells. Tate and May give a figure, *op. cit.*, pl. xxiv., fig. 19, of *C. miltostoma* as their *C. saccharata*. The description of *C. saccharata* does not apply, this has sulcations only over the base: in *C. miltostoma* they are as shown in Tate and May's figure all over the body-whorl, and especially just below the suture.

This shell is translucent and unicoloured, and may be typically pinkish: but it may be amber coloured, yellowish, or white.

It has been taken on the beach at MacDonnell Bay; in 12 fathoms off Porpoise Head, 2; in 16 fathoms off Tunk Head, 1 alive; in 17 fathoms Backstairs Passage, 9; in 20 fathoms off Newland Head, 1 alive; in Gulf St. Vincent up to 22 fathoms, 60 alive and dead; in 40 fathoms off Beachport, 1 good, dead.

The following variations may be met with in shells with the same translucence, sculpture, and shape, and link it to

Pyrene nubeculata, Reeve, of which I think it is only a variety:—

1. A whitish shell with an opaque white continuous band encircling the body-whorl from the suture.
2. Or with a spiral of white dots encircling it.
3. A white-dotted peripheral spiral, and an infra-sutural spiral of narrow elongate brown spots; sometimes the brown spots are faint or invisible, and there are opaque white spots; sometimes white-and-brown spots articulate; sometimes the space between these spirals is dotted white.
4. A white-dotted peripheral spiral, and above this a spiral of larger fewer brown blotches.
5. A white-dotted peripheral spiral, above this a spiral of brown spots, and another at the suture clouding into each other between.
6. A white-spotted peripheral spiral with about twelve wavy axial brown thin flames from suture to snout.
7. A distinct dark-brown hair line at the periphery, and showing immediately above the suture, or with this hair line immediately above a white-dotted peripheral spiral, or with broad light-brown distant axial flames to the suture above, or with the peripheral hair line, and above this fine oblique *Dictua* lines up to the suture.
8. A peripheral spiral only of narrow elongate spots, appearing just above the suture in the spire.

***Pyrene legrandi*, Tenison-Woods.**

Columbella legrandi, Tenison-Woods, Proc. Roy. Soc., Tasmania, 1876 (1875), p. 152. *Type locality*—"King's Island, Tasmania." Tryon, Man. Conch., 1883, vol. v., p. 137, pl. li., fig. 49; Kobelt, Conch. Cab. (Ed. Küster), 1897 (1895), p. 212, No. 237, pl. xxix., fig. 9; Tate and May, Proc. Linn. Soc., New South Wales, 1901, vol. xxvi., part 3, p. 367; May, Proc. Roy. Soc., Tasmania, 1902, p. 110, fig. 5, in text; Gatliff and Gabriel, Proc. Roy. Soc., Victoria, 1908, vol. xxi. (N.S.), part 1, p. 373, Victorian coast (recorded *op. cit.*, 1899, vol. xi., p. 203, as *C. brunnea*, Brazier).

The colouration is very variable. The shell may be uniformly rose-pink, brown, or white. There may be a dotted white sutural line, and a peripheral white spiral, continuous or interrupted. There may be white and amber-coloured axial flames from the suture to a white peripheral spiral band, or crowded opaque white axial narrow lines, or narrow obliquely spiral *Dictua*-like lines, either brown or opaque-white, or in an opaque white shell there may be a spiral of distant fantastic amber blotches in the spire-whorls, an amber continuous spiral above the suture, and a broad basal amber band.

Dredged in 12 fathoms Backstairs Passage, 1 fresh, 1 dead; in 17 fathoms, 3 alive, 10 dead; in 20 fathoms, 4 fresh; in 22 fathoms, 3 alive, 26 dead; in 35 fathoms off St. Francis Island, 4 immature; in 40 fathoms off Beachport, 6 dead; in 90 fathoms off Cape Jaffa, 3 dead; in 110 fathoms off Beachport, 1 very poor; in 150 fathoms, 2 dead, perfect; in 200 fathoms, 1 very poor. This seems to be a fairly deep-water form for the genus.

Pyrene attenuata, Angas.

Columbella attenuata, Angas, Proc. Zool. Soc., London, 1871, p. 14, plate 1., fig. 4. *Type locality*—"Port Jackson (Brazier)." (*Atilia*), Tryon, Man. Conch., 1883, vol. v., p. 151, pl. liii., fig. 18; Kobelt, Conch. Cab. (Ed. Küster), 1897 (1896), Band iii., Abt. i., p. 220, No. 251, pl. xxx., fig. 6; Pritchard and Gatliff, Proc. Roy. Soc., Victoria, 1899 (1898), vol. xi. (N.S.), part 2, p. 203, Victorian coast; Tate and May, Proc. Linn. Soc., New South Wales, 1901, vol. xxvi., part 3, p. 365, "Pirate's Bay, Tasmania (May)"; Hedley, Memoirs Austr. Mus., 1903, vol. iv., part 6, p. 377, 24 to 27 fathoms and 63 to 75 fathoms off coast of New South Wales.

Terebra beddomei, Petterd, Jour. of Conch., 1884, vol. iv., p. 142, No. 28. *Type locality*—"Brown's River, Tasmania."

Dredged in 24 fathoms off Newland Head, 1 poor; in 40 fathoms off Beachport, 2 poor; in 110 fathoms, 15 good and 68 poor; in 150 fathoms, 37 dead; in 200 fathoms, 8 poor; in 130 fathoms off Cape Jaffa, 10 moderate, 60 poor.

This species does not appear to inhabit our shallow waters, but to be fairly common in from 100 to 150 fathoms.

Pyrene angasi, Brazier.

Columbella interrupta, Angas (*non* Gaskoin), Proc. Zool. Soc., London, 1865, p. 56, pl. ii., figs. 9 and 10. *Type locality*—Yorke Peninsula, South Australia.

Columbella Angasi, Brazier, *op. cit.*, 1871, p. 322; (*Mitrella*), Tryon, Man. Conch., 1883, vol. v., p. 128, pl. xlix., fig. 11; Adcock's Handlist Aquatic Moll., South Australia, 1893, p. 5, No. 113; Kobelt, Conch. Cab. (Ed. Küster), 1897 (1895), Band iii., Abt. i., p. 210, No. 233, pl. xxix., fig. 4; Pritchard and Gatliff, Proc. Roy. Soc., Victoria, 1899 (1898), vol. xi. (N.S.), part 2, p. 201, Victorian coast; Tate and May, Proc. Linn. Soc., New South Wales, 1901, vol. xxvi., part 3, p. 365, Tasmania; Hedley, Memoirs Austr. Mus., 1903, vol. iv., part 6, p. 378, 54 to 59 fathoms off Wata Mooli, New South Wales.

Columbella minuta, Tenison-Woods (*non* Gould), Proc. Roy. Soc., Tasmania, 1876 (1875), p. 152. *Type locality*—Swansea, East coast of Tasmania.

Columbella (Mitrella) tenisoni, Tryon, Man. Conch., 1883, vol. v., p. 128, pl. xlix., fig. 10, *nom. mut.* Kobelt, Conch. Cab. (Ed. Küster), 1897 (1895), Band iii., Abt. i., p. 210, No. 232; Pritchard and Gatliff, Proc. Roy. Soc., Victoria, 1899 (1898), vol. xi. (N.S.), part 2, p. 201, Victorian coast.

This is a most variable little species, both in shape and ornament. From single specimens several species might be created, but examination of a large number of individuals combines them all into one.

The shell may be comparatively long in the spire and narrow, or very short and broad; the whorls may be sloping and flat, or quite convex, and sometimes tumid beneath the suture, and the outer lip may be straight, or curved, or medially compressed. I have sought to separate a form which might be distinguished as *C. tenisoni*, Tryon, but without success, and have to coincide with Crosse that this species (*nom. mut.* for *C. minuta*, Tenison-Woods) is a synonym of *C. angasi*, Brazier. The colour markings have been studied very elaborately, and are described somewhat exhaustively below. I may say that the varying shapes may be found in the different groups of colour ornament, hence the impossibility of distinguishing two or more species.

The species show the following colour variations:—

A. It has a white band round the middle of the body-whorl, appearing partly above the sutures in the spire, with bold white S-shaped marks, and a spotted white spiral over the back of the canal, with brown crescents convex forwards a little below the suture, and brown axial hair lines to the base, interrupted by the peripheral white band.

B. There may be in addition a row of brown crescents convex forwards above and below the peripheral white band between the ends of the S-shaped marks.

C. There may be infrasutural brown crescents and axial brown hair lines to the base, uninterrupted by any peripheral white band.

D. There may be an articulated opaque white spiral just above the periphery, and another narrower a little below it: the space between them being translucent white, and axial brown hair lines from this to the suture above and the base below.

E. From the back of the aperture the base of the body-whorl is blackish-brown, abruptly lined above by the peripheral white spiral, and traversed below by a white spiral line just above the engraved spirals over the canal.

F. Shell white or brown or light-brown, with dark purple tips, simply pencilled axially with brown hair lines.

A second series is found with quite a distinct type of colouration, the hair lines being absent.

A. With axial brown or golden-brown narrow boomerang-shaped flames convex forwards from the suture to the periphery, and another from this over the base.

B. The flames may be wavy, with several curves in their total length.

C. With the axial flames there may be a white spiral band beneath the suture, a peripheral spiral of white spots, and a white spiral just above the revolving liræ over the canal.

D. The flames may be absent and only the three white spirals may remain.

E. Or the lower two only.

F. Or only that above the notch.

G. Or the shell may be wholly white and unornamented.

A third series consists of shells of a cinnamon-brown tint, or bluish or purplish-white. It is squat in shape, with convex-whorls slightly tumid below the suture, with a blackish-purple apex.

A. The body-whorl is ornamented throughout with three spiral rows of arrow-heads directed forwards, and formed of dark-brown rather close-set lines; the three rows are separated along two narrow spiral lines, one just above the periphery and the other from the back part of the aperture.

B. The arrow-head markings may be absent, the shell being otherwise indistinguishable.

A fourth series has two broad pale-pink spirals on the body-whorl; sometimes the upper one is broken up into large square blotches. The upper band is defined below by a narrow spiral line of white spots: these may be narrow, transversely elongate, placed obliquely, with the anterior end slightly higher than the posterior, or club-shaped, with the wider end in front; sometimes from the narrow end of these clubs directed downwards and backwards, a narrow long white spot may extend downwards and forwards.

Taken on the beach all along the coast from Beachport to St. Francis Island. Dredged in Gulf St. Vincent and Spencer Gulf, many alive and dead; in 40 fathoms off Beachport, 36, some alive; 45 fathoms off Neptune Island, 1 poor; 55 fathoms off Cape Borda, 25 good, 2 poor; 90 fathoms off Cape Jaffa, 1; 110 fathoms off Beachport, 2 good, 37 poor; 130 fathoms off Cape Jaffa, 15 very poor; 150 fathoms off Beachport, 1 poor. This species extends out into quite deep water.

Pyrene beachportensis, n. sp. Pl xxix., figs. 8 and 9.

Shell small, solid, of five whorls, including a blunt protoconch of two round smooth whorls ending abruptly. Suture linear, distinct, ascending at the aperture. Spire-whorls convex below the suture; the first two sloping towards the lower suture, the third somewhat contracted. Body-whorl large

convex, roundly contracted at the base, with a moderately long pillar.

Aperture obliquely axially rhomboidal, with a distinct gutter below the suture, outer lip swollen below the suture corresponding with the gutter, then straight or slightly impressed, anteriorly curved with a shallow infrasutural sinus in its border. Inner lip distinct, complete. Columella straight in upper half, and bent to the left in its lower. Canal open and notched.

Sculpture, slightly rude axial growth lines; eleven spirals from the labium winding round the snout.

Ornament, amber coloured, with spiral of large opaque white spots below the suture; and beneath this a narrow continuous white band, a second spiral of larger spots starting from the back of the aperture. The area between the continuous band and the front of this spiral row of spots being translucent white. A dark spot on the apex.

Dim.—Length, 4 mm.; of body-whorl, 2.2 mm.; breadth, 1.8 mm.

Locality.—Type, 40 fathoms off Beachport, with 1 other; 110 fathoms off Beachport, 2; 150 fathoms off Beachport, 1.

Diagnosis.—It differs from *P. atkinsoni*, Tenison-Woods, in its blunt apex; and from *P. angasi*, of Brazier, and *P. tenisoni*, Tryon, in its swollen whorls and its large peripheral row of white spots, and especially in the bend of the canal.

Type in my collection.

***Pyrene atkinsoni*, Tenison-Woods.**

Mangelia atkinsoni, Tenison-Woods, Proc. Roy. Soc., Tasmania, 1876 (1875), p. 141. *Type locality*—"East coast of Tasmania."

Columbella (Anachis) speciosa, Angas, Proc. Zool. Soc., London, 1877, p. 35, pl. v., fig. 3. *Type locality*—"Port Jackson." (*Seminella*), Tryon, Man. Conch., 1883, vol. v., p. 171, pl. lvii., fig. 24; Kobelt, Conch. Cab. (Ed. Küster), 1897 (1896), Band iii., Abt. i., p. 237, No. 281, pl. xxii., fig. 7; Adcock, Handlist Aquatic Moll., South Australia, 1893, p. 5, No. 119.

Columbella atkinsoni, Tenison-Woods, Pritchard and Gatliff, Proc. Roy. Soc., Victoria, 1898 (1898), vol. xi. (N.S.), part 2, p. 204, Victorian coast; Tate and May, Proc. Linn. Soc., New South Wales, 1901, vol. xxvi., part 3, p. 366.

Some examples are long and narrow, while others are short and ventricose; there may be quite valid axial ribs, or none, especially in longer individuals.

There may be a spiral row of white spots immediately below the suture. In some this may be present in the upper whorls, while the later whorls show a continuous opaque white

infrasutural spiral, with white prolongations from it on the upper ends of the axial ribs, or even all along them. A second spiral row of white spots may occur just above the suture through all the spire-whorls and above the periphery of the body-whorl, or it may disappear from the later spire-whorls and be found below the periphery of the body-whorl. The spots may be round, crescentic, or arrow-headed, directed forward. A third spiral of opaque white spots may be present just above the canal, which may also be white. There are axial wavy fine brown hair lines from the infrasutural white spiral to the canal, interrupted by the central and basal white spirals. Sometimes in addition the shell has a well-marked brown colour, and all the margin of the aperture may have a shining dark-brown tint; one variant has a golden-brown spiral band a little below the infrasutural white spiral as its only ornament.

It is taken on the beach at Murat Bay and St. Francis Island in the west. It is dredged alive in 5 fathoms Gulf St. Vincent, many; 6 fathoms off St. Francis Island, several; 15 to 20 fathoms Investigator Strait, 4; 35 fathoms off St. Francis Island, several; dead in 40 fathoms off Beachport, 10 moderate, immature; 55 fathoms off Cape Borda, 62 good, short form, 7 very poor, long form; 62 fathoms off Cape Borda, 4 very poor.

***Pyrene dolicha*, n. sp.** Pl. xxix., fig. 1.

Shell subulate of eight whorls, including a rather pointed protoconch of two smooth scarcely convex turns. Spire-whorls scarcely convex; suture distinct, subcanaliculate; body-whorl long, cylindrical, base roundly contracted; aperture narrowly oblong-oval, angulate behind, widely open in front, notched; outer lip straight, minutely swollen at the suture, scarcely impressed at its centre, effuse anteriorly; inner lip distinct, thick, erect, thickened at the suture, where it roundly joins the outer lip. Smooth, except for seven spiral liræ winding from the inner lip round the snout. Ornament, an infrasutural row of axial opaque-white spots in the upper whorls, and a brown tinting of the margin of the aperture,

Dim.—Length, 4·8 mm.; breadth, 1·4 mm.

Locality.—Gulf St. Vincent.

The type is unique; its apex and general facies and ornament are those of the smooth variety of *P. atkinsoni*, Tenison-Woods, but it is very much larger. It may be only an extreme variant.

Type in my collection.

Pyrene remoensis, Gatliff and Gabriel.

Columbella remoensis, Gatliff and Gabriel, Proc. Roy. Soc., Victoria, 1910, vol. xxiii. (N.S.), part 1, p. 82, pl. xviii., figs. 1 and 2. *Type locality*—San Remo, Western Port.

Dredged in Gulf St. Vincent, depth not recorded, 6 good, 38 dead; in 40 fathoms off Beachport, 6 moderate; in 55 fathoms off Cape Borda, 5 good, 5 poor; in 62 fathoms, 1 poor; in 110 fathoms off Beachport, 1 good, 5 poor; in 130 fathoms off Cape Jaffa, 2 poor; in 150 fathoms off Beachport, 1 poor.

To the author's description I may add that there is also an infrasutural row of tiny tubercles, due to the splitting of the row of large tubercles each into two. The ornament in the living shell consists of two translucent spiral bands, one on the spire-whorls between the large tubercles and the suprasutural, and winding round the body-whorl to the centre of the outer lip, it is edged above with a broken brown hair line, and towards the lip becomes brown; the other winds round the base and over the snout, where it is mottled and streaked with brown.

Pyrene fenestrata, n. sp. Pl. xxix., fig. 7.

Shell minute, of five whorls, including a blunt protoconch of one convex-whorl and a half, ending abruptly by a scar. Spire-whorls shouldered in the upper third; above this sloping, below this vertical. Body-whorl voluminous, shouldered, subangulate at the periphery, concavely contracted at the base. Aperture rhomboidal, contracted posteriorly; canal wide, deflected to the left; outer lip simple, thin; columella straight, feebly bidentate. Sculpture, short plicate tubercles from the suture to just beyond the shoulder, sixteen in the body-whorl; closely feebly spirally striate all over. There is a spiral row of translucent crescentic areas convex forward, just above the sutures, like windows, as though formed by grinding away the opaque outer layer of the shell, eight in the body-whorl, with the spiral striæ showing like scratches in the glass. There is a second series of them just below the periphery, becoming a broad translucent band towards the lip margin. Colour opaque-white, with a small obscure pale-brown blotch in the lower half of the lower series of windows.

Dim.—Length, 3.4 mm.; of the body-whorl, 2.4 mm.; breadth, 1.65 mm.

Locality.—Type, Venus Bay beach, 2; St. Francis Island beach, 1.

Type in my collection.

Pyrene jaffaensis, n. sp. Pl. xxix., figs. 5 and 6.

Shell cylindrically fusiform. Protoconch blunt, of one whorl and a half, subconvex, smooth, ending abruptly by a scar. Whorls four, subconvex. Sutures distinct, subcanaliculate, very narrowly marginate, ascending near the aperture. Body-whorl oval, somewhat compressed at the base. Aperture oval, narrowed posteriorly: canal wide, notched; outer lip thin, simple, infrasuturally feebly excavate; columella curved, obtuse-angled at the sinistrally directed canal. Smooth, but for sublenticular minute axial and longitudinal crowded scratches.

Dim.—Length, 5·9 mm.; of body-whorl, 3·4 mm.; breadth, 2·2 mm.

Locality.—Type from 130 fathoms off Cape Jaffa, dead, with 2 others; 40 fathoms off Beachport, 1 good; 110 fathoms, 4 poor; 55 fathoms off Cape Borda, 1 moderate; 62 fathoms, 2 poor; Gulf St. Vincent, depth unrecorded, 1 alive, of a light-brown colour, protoconch darker.

Its generic location is questionable, but must be determined by future examination of the mollusc.

Type in my collection.

Pyrene plexa, Hedley.

Columbella plexa, Hedley, Proc. Linn. Soc., New South Wales, 1901, part 4, p. 702, fig. 25; (*Pyrene*), Verco, Trans. Roy. Soc., South Australia, 1908, vol. xxxii., p. 343.

It has been taken by me also in 90 fathoms off Cape Jaffa, 2 good; in 110 fathoms off Beachport, 3 good; and in 130 fathoms off Cape Jaffa, 8 good, 7 poor.

Pyrene calva, n. sp. Pl. xxix., figs. 2 and 3.

Shell solid, of six whorls, including a protoconch of two convex smooth whorls, ending abruptly. Spire-whorls convex, sutures impressed. Body-whorl, base roundly contracted; aperture narrowly oblong-oval, pinched anteriorly into a notched canal with slightly reflected margin. Outer lip with three denticles inside its posterior third, the largest behind, and a small round shallow infrasutural sinus; inner lip a thin glaze. Sculpture bold, two spirals in the first spire-whorl, three in subsequent whorls, twelve in the body-whorl; their intersection with the axials, of which there are sixteen to eighteen in the penultimate, are tuberculate, except in the anterior four spirals on the snout, which are crossed only by oblique striæ.

Dim.—Length, 4·4 mm.; breadth, 1·7 mm.

Locality.—Type dredged in 55 fathoms north-west of Cape Borda, with 57 others, in good condition; in 6 fathoms

off St. Francis Island, 1 poor; in 10 to 15 fathoms, 1 poor; in 17 fathoms Backstairs Passage, 4 dead; in 22 fathoms, 6 fresh; in Gulf St. Vincent, below 25 fathoms, 37 dead and fresh; in 40 fathoms off Beachport, 6 good; in 45 fathoms east of Neptunes, 1 poor; in 55 fathoms off Cape Borda, 58 good; in 62 fathoms, 4 moderate; in 90 fathoms off Cape Jaffa, 13 moderate; in 104 fathoms, 35 miles south-west of Neptunes, 13 moderate; in 110 fathoms off Beachport, 1 fresh, 4 moderate; in 130 fathoms off Cape Jaffa, 1 good, 4 moderate; in 200 fathoms off Beachport, 1 very poor.

Diagnosis.—It approaches *P. gemmulifera*, Hedley, Proc. Linn. Soc., New South Wales, 1907, vol. xxxii., part 3, p. 510, pl. xix., fig. 44, but has a smooth protoconch; any axial sculpture on it, which is very rare, is only a faint striation near the upper suture, and close to the abrupt ending of the protoconch, quite different from the ribbing of Hedley's species. The spire-whorls are well rounded, and contain mostly three spirals. It is a larger species. Gatliff and Gabriel have recorded this shell for Victoria in Proc. Roy. Soc., Victoria, 1910, vol. xxiii. (N.S.), part 1, p. 89, as *Columbella gemmulifera*, Hedley, noting the differences as varietal, which I regard as specific.

Variations.—When alive the shell is translucent shining uniform light-amber colour, the protoconch rather darker, or a broad whitish band may encircle the middle of the whorls, fading out before reaching the aperture; the protoconch may be purple; generally the shell is translucent or opaque-white, probably from bleaching. Sculpture.—The axials and spirals may be well marked, but the tuberculation obsolete, giving a latticed pattern. There may be two spirals in the first spire-whorl; the back one may then split behind into a third, which gradually enlarges, and this may in the fourth whorl give off another one behind. There may rarely be three spirals in the first spire-whorl, and four in the second.

Type in my collection.

Pyrene cominellæformis, Tate.

Columbella cominellæformis, Tate, Trans. Roy. Soc., South Australia, 1892, vol. xv., p. 126, pl. 1., fig. 8. *Type locality*—Fowler Bay to Victoria. Pritchard and Gatliff, Proc. Roy. Soc., Victoria, 1899 (1898), vol. xi. (N.S.), part 2, p. 204, "Western Port"; Pace, Proc. Mal. Soc., London, 1902, vol. v., p. 68.

Dredged on Yatala Shoal 6 to 10 fathoms, 1; in 15 fathoms off Middleton, 1 dead; in 22 fathoms Backstairs Passage, 1 alive, 1 dead.

Truncaria australis, Angas.

Truncaria australis, Angas, Proc. Zool. Soc., London, 1877, p. 172, pl. xxvi., fig. 5. *Type locality*—Port Jackson. Pritchard and Gatliff, Proc. Roy. Soc., Victoria, 1906, vol. xviii. (N.S.), part 2, p. 44, Victorian coast.

Dredged in 40 fathoms off Beachport, 2 good, 1 poor. One of these is of bluish-pink tint.

 EXPLANATION OF PLATES.

PLATE XXIX.

1. *Pyrene dolicha*, Verco, n. sp.
2. " *calva*, Verco, n. sp.
3. " " protoconch.
4. " *axiaerata*, Verco, n. sp.
5. " *jaffaensis*, Verco, n. sp., side view.
6. " " ventral view.
7. " *fenestrata*, Verco, n. sp.
8. " *beachportensis*, Verco, n. sp., dorsal view.
9. " " " mouth.

PLATE XXX.

1. *Triphora novapostrema*, Verco, n. sp.
 2. " " protoconch.
 3. *Turritella circumligata*, Verco, n. sp.
 4. " " protoconch.
 5. " *mediolevis*, Verco, n. s.p.
 6. " " protoconch.
 7. " *neptunensis*, Verco, n. sp.
 8. " *medioangulata*, Verco, n. var.
 9. " " " protoconch.
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